THE ORACLES

The Oracles is a multi-sited immersive gaming experience created by Punchdrunk Enrichment, developed for local primary school children in Haringey, London. Inspired by the myth of the Twelve Labours of Hercules, the project is designed to engage Key Stage 2 pupils with Greek mythology and mathematics, and to improve digital literacies.

Punchdrunk Enrichment is the educational and outreach arm of Punchdrunk, an immersive theatre company that encourages audiences to participate actively and creatively in theatrical events. Punchdrunk Enrichment creates work with and for participants in schools and communities. In schools they use multi-sensory installations and immersive narratives, to create fictional worlds in which students play an active role.

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Project Rationale

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The project sought to investigate how gaming pedagogies might be combined with immersive theatre principles to provide a range of learning opportunities for children as they played within and across a range of virtual and physical spaces. Although Punchdrunk Enrichment (PE) has previously integrated gaming principles into their work (Cremin et al, 2015) The Oracles was the first time that digital gaming, in the form of a 'virtual world', had been incorporated into the theatrical experience.

PE wanted to understand how this approach to immersive play, across digital and physical realms, might support children's learning, with a particular focus on problem-solving, collaboration and communication. The game was designed to support learning in the subject area of maths, and required pupils to use skills such as logic, code-breaking and algebra.

Educators have argued that computer games can embody learning principles (Gee, 2014), and there have been an increasing number of studies which have explored the challenges and potential gains when teachers integrate digital games into their teaching practices (Beavis et al, 2017). However, the pedagogical implications of immersive forms of game-play are still under-researched, especially as they relate to primary school settings (Colvert, 2015).

Project Description

The Oracles was played by seven classes of children across eight schools in Tottenham Hale, in the London Borough of Haringey over four weeks in June 2017. It was also subsequently delivered to seven schools in October and November 2017.

During the game the players were challenged to save the village of Fallow Cross and protect a group of villagers, who call themselves The Oracles, from an evil sorceress called Circe. To succeed they needed to work together to uncover Hercules' twelve labours and piece together his shield in order to restore protection to the village. The game was structured in seven episodes which look place across and within physical and virtual realms: three physical visits to a theatrical installation, three classroom sessions including the playing of a digital game and then a final culminating video.

The children first encountered Fallow Cross by playing a digital game on tablets in their classrooms. When exploring this virtual world they collected herbs and pieced together the history of the village from letters scattered around the environment. In later episodes they also navigated mazes, and solved mathematical challenges offline, such as calculating the codes needed to unlock chests in order to recover parts of Hercules' shield. At the end of episode 1 the children discovered a letter in a school room at the heart of the virtual village. The letter was a call for help and the children were told that the village was actually a 'real place' and that to save it they must each come in person...

Accordingly, in episode 2, the children travelled to a theatrical installation in a warehouse in Tottenham Hale. Once they stepped inside they found themselves in a schoolroom that looked exactly the same as the schoolroom did in the game, though here they were standing inside it and could touch, smell and interact with it in myriad ways! The children then learnt that they needed to venture into the village again and outwit the sorceress by completing challenges in order to uncover the Twelve Labours of Hercules. They soon discovered that their actions in the digital game affected the physical village and vice versa. So, for example, the herbs and shields that they had collected in the virtual world appeared in the physical village and could then be used to make a protection spell. Physically placing one of the labours in the fountain at the centre of the village meant that it appeared in exactly the same spot in the virtual world. As they moved between and within these physical and virtual realms they developed a nuanced understanding about the importance of their interactions.

The Fountain of Fallow Cross in the digital game (above) and the installation (below)
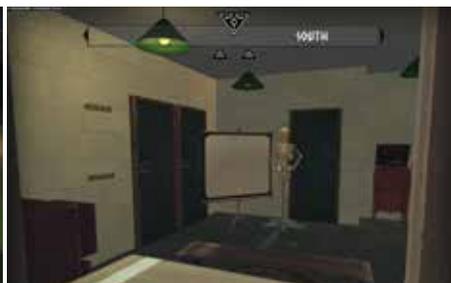
The School Room in Fallow Cross in the digital game (above) and in the installation (below)


Tackling Challenges in the classroom (above) and in the installation (below)

Gee, J. P. (2014) What Video Games Have to Teach us About Learning and Literacy - 2nd Edition. New York, St Martin's Press.

Beavis, C., M. Dezuanni and J. O'Mara (2017) Serious Play: Literacy Learning and Digital Games. London, Routledge

Colvert, A (2015) Ludic Authorship: Reframing Literacies through Peer-to-Peer Alternate Reality Game Design in the Primary Classroom. Unpublished PhD thesis. Institute of Education: University College London
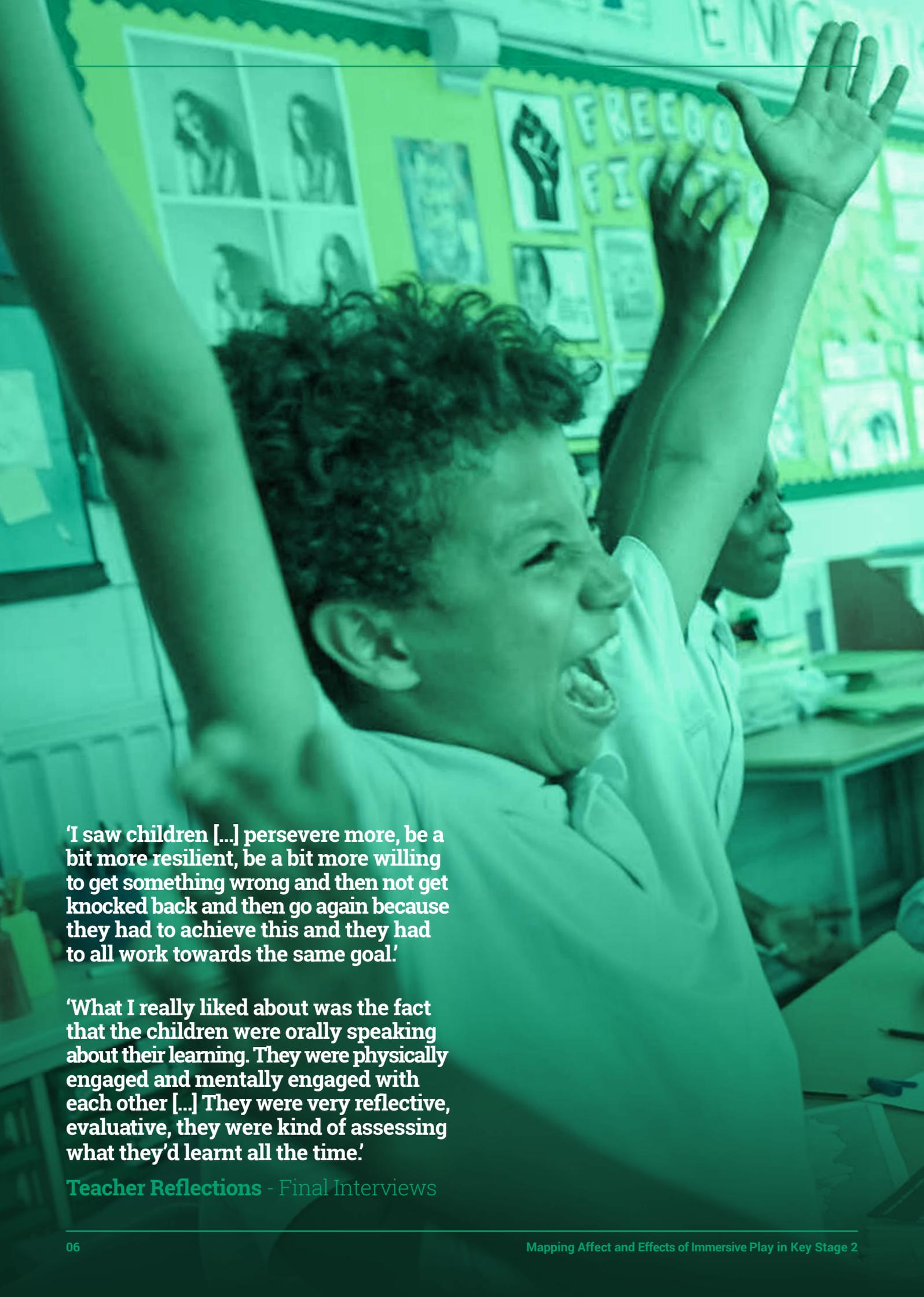
'I saw children [...] persevere more, be a bit more resilient, be a bit more willing to get something wrong and then not get knocked back and then go again because they had to achieve this and they had to all work towards the same goal.'

'What I really liked about was the fact that the children were orally speaking about their learning. They were physically engaged and mentally engaged with each other [...] They were very reflective, evaluative, they were kind of assessing what they'd learnt all the time.'

Teacher Reflections - Final Interviews

The Research Aim

Understanding Immersive Play

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The research was undertaken by Angela Colvert from the University of Roehampton and was designed as an exploratory case study (Bassey, 1999). It sought to investigate the pedagogical significance of play in Punchdrunk Enrichment's The Oracles focusing on the experiences of artists, teachers and children. The central aim was: **Understanding the Purposes, Practices, Processes and Products of Play in Oracles: Mapping Multiple Perspectives of a Multi-sited Immersive Game.**

The research was undertaken with three case-study classes (including teachers and children) in three different schools: one Year 4 class (7-8 year olds); one Year 5 Class (8-9 year olds); one Year 6 Class (10-11 year olds). Within each case-study class, six focus-children were identified in discussion with the teachers: the sample included a gender mix and reflected diversity within their class and across the year group, particularly in terms of their attitudes to and experiences of learning and their attainment in maths and literacy. Four PE performers also participated in the research, one of whom facilitated the classroom challenges and three of whom led teams of children in the installation. The views and perspectives of key members of PE were also sought, including those of the Enrichment Director, the Producer and the Lead Game Designer.

Data collected included:
- **Interviews:** undertaken at the start and at the end of the project with focus-children, teachers, artists and key members of PE;
- **Field notes:** of significant moments during play, and children's and teacher's reflections and responses after each episode of play (written, filmed and/or audio recorded);
- **Observations:** of three case-study classes' participation in The Oracles in classrooms and in the installation;
- **Detailed information from/on case-study students/teachers:** interviews, field notes, teacher accounts;
- **Teacher Reflections:** gathered by PE staff during an end of project debrief.

All data was thematically coded to identify patterns and themes relating to the ways The Oracles was perceived and enacted by the various participants.

Pedagogical Significance

Mapping Intensity (affect) and Engagement (effect)

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The primary contribution of this research is a new conceptualisation of immersive play, and its pedagogical potential, rooted in the experiences of the participants of The Oracles. Analysis of the data revealed that the engagement of the participants was closely related to the intensity of the experience.

Intensity was composed of four elements:
- a sense of purpose
- a sense of urgency
- a sense of place
- a sense of community

These were coded as 'affect' as they were (im)material (Burnett et al, 2014), relating to the interpretations, perceptions, intentions and emotional responses of players.

The engagement of players included:
- constructing stories
- tackling challenges
- performing belief
- reshaping relationships

All of these were coded as 'effect' as they related to the material, tangible, aspects of gameplay as they co-created the gameworld through their performances, producing and distributing a range of actions and objects as the game progressed.
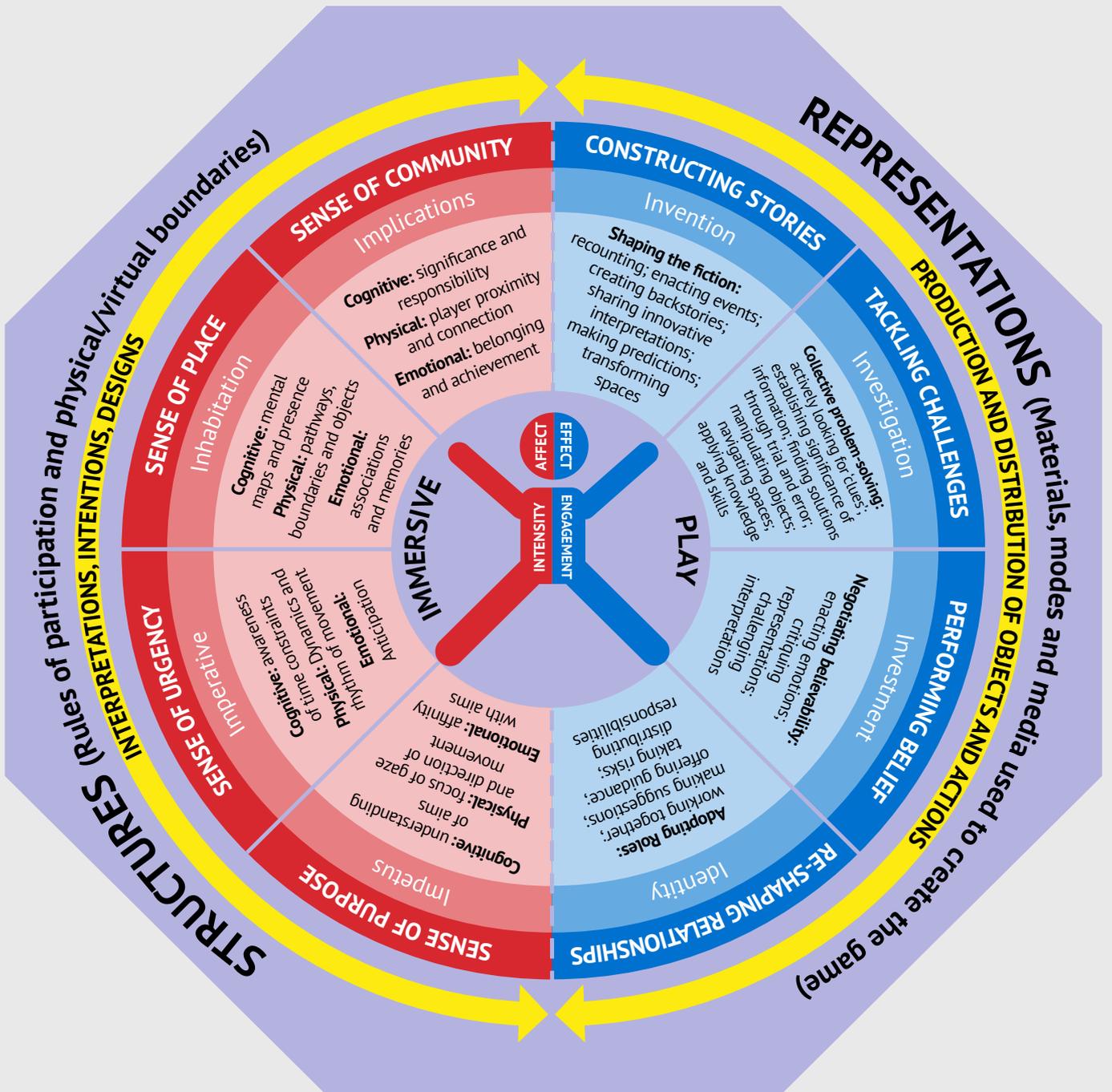
McGonigal, J. (2003) 'Real Little Game: The Performance of Belief in Pervasive Play' in DiGRA : Level Up Conference Proceedings. Utrecht, University of Utrecht
Burnett, C., G. Merchant, K. Pahl and J. Rowsell, (2014). The (im)materiality of literacy : the significance of subjectivity to new literacies research. Discourse: Studies in the Cultural Politics of Education, 35 (1), 90-103.

Model of Immersive Play

The diagram below highlights the interconnected relationship between intensity (affect) and engagement (effect). At the centre of the model is the participant (child, artist or teacher), as play is an embodied experience. The red areas represent intensity (affect) which is experienced by the participant cognitively, physically and emotionally. The blue areas represent engagement (effect) and relate to the actions of participants. The purple areas represent immersive play which is framed by the structures and the representations of the game. Play is a dynamic process, as represented by the yellow arrows, in which the participants shape meanings together. Intensity of play inflects engagements and vice versa.

STRUCTURES (Rules of participation and physical/virtual boundaries) — INTERPRETATIONS, INTENTIONS, DESIGNS

REPRESENTATIONS (Materials, modes and media used to create the game) — PRODUCTION AND DISTRIBUTION OF OBJECTS AND ACTIONS

IMMERSIVE — PLAY

EFFECT — AFFECT
ENGAGEMENT — INTENSITY

SENSE OF COMMUNITY — Implications
Cognitive: significance and responsibility
Physical: player proximity and connection
Emotional: belonging and achievement

SENSE OF PLACE — Inhabitation
Cognitive: mental maps and presence
Physical: pathways, boundaries and objects
Emotional: associations and memories

SENSE OF URGENCY — Imperative
Cognitive: awareness of time constraints and Dynamics of movement
Physical: rhythm of movement
Emotional: Anticipation

SENSE OF PURPOSE — Impetus
Cognitive: understanding of aims
Physical: focus of gaze and direction of movement
Emotional: affinity with aims

CONSTRUCTING STORIES — Invention
Shaping the fiction: recounting; enacting events; creating backstories; sharing innovative interpretations; making predictions; transforming spaces

TACKLING CHALLENGES — Investigation
Collective problem-solving: actively looking for clues; establishing significance of information; finding solutions through trial and error; manipulating objects; navigating spaces; applying knowledge and skills

PERFORMING BELIEF — Investment
Negotiating believability: enacting emotions; representations; critiquing challenging; interpretations

RE-SHAPING RELATIONSHIPS — Identity
Adopting Roles: working together; making suggestions; offering guidance; taking risks; distributing responsibilities

Using the Model to Understand Affect and Effect in The Oracles
Each of the areas relating to the intensity (affect) during play can be seen to influence the engagement (effect) of players as they shape the game together through their interactions. The pedagogical significance of these areas, as they pertain to immersive play during The Oracles, can be summarised as follows:

Constructing Stories (Invention)

Affect	Links with Effect - Constructing Stories (Invention)
Purpose (Impetus)	Constructing stories was an **iterative process and embodied experience,** during which **artists, teachers and children shaped the fiction together** through dialogue, performance and the production of texts. The children were highly **motivated to understand and shape the narrative** and regularly engaged in detailed collective recounts when travelling back from the installations with their peers in order to **clarify events** and to **relive scary moments.** All teachers saw potential to **inspire children's writing,** and sometimes integrated the fiction of Fallow Cross into subsequent lessons, but due to time constraints not all felt able to integrate this into their curriculum planning. Some children created written texts outside of class (such as **letters and short scripts**) and shared these with the performers in order to **influence gameplay in the installation**.
Urgency (Imperative)	The imperative to defeat the character of Circe prompted players to **extend the narrative by co-constructing and contesting conspiracy theories** related to her 'true identity' and possible collaborators. In doing so, they also **developed an additional imperative aim for gameplay**.
Place (Inhabitation)	Children, teachers and artists shaped the gameplay though the **transformation and exploration** of spaces. Observations revealed that children were able to make **innovative connections** between their physical and virtual experiences of Fallow Cross, particularly in relation to their **understanding of characters** and through **imaginative interpretations of everyday (non-designed) spaces**.
Community (Implications)	The focus-children across all three classes **demonstrated empathy** for the characters' plight and experienced a **collective sense of responsibility** during the game. Many of the children said that they **felt like heroes** after playing the game and felt a **deep sense of pride** in their **collective and individual achievements.**

Tackling Challenges (Investigation)

| Affect	Links with Effect - Tackling Challenges (Investigation)
Purpose (Impetus)	Analysis of observations and field notes, revealed that the focus-children in the case-study classes were **highly motivated to complete the challenges** in order to complete the quest and save the village. Although the children recognised the **importance of maths knowledge** in the game, they also identified a range of other skills needed such as **team-work** and **running fast!** The teachers observed that the **need to apply mathematical knowledge and skills in meaningful contexts** was a strength of the game, particularly in the installation. They also valued the opportunity to make **curriculum links with children's interests in gaming.** The children were motivated by gathering herbs in the digital game and although for many the **focus was on collective endeavour,** others **introduced a competitive element**.
Urgency (Imperative)	The teachers remarked on the **resilience and focus** of some of the children as they **engaged in trial and error for extended periods** both during the classroom challenges, and when in the physical world of Fallow Cross. Although all focus-children felt that **their involvement was central to completing the quest,** occasionally the pace of play in the installation meant that the **less confident mathematicians focused on finding clues** (pieces of information) for the group rather than **applying knowledge in calculations**.

Place (Inhabitation)	Teachers and artists observed that the **tactile and concrete ways of working** out solutions to problems by manipulating objects in the installation **supported both the able and less able mathematicians** in engaging with the challenges. Although the digital game was single-player, **children offered advice to each other** when tackling navigational challenges in the digital realm.
Community (Implications)	The focus-children linked time-constraints with the **need to work together** to complete the challenges and they **identified as a team** during the game. The **performers facilitated the problem solving** during the installation, and the **teachers reported feeling like players** at times. During the classroom challenges, children worked in twos and threes on identical tasks and **shared their approaches and strategies** with each other. In this process the **teachers became facilitators**.

Performing Belief (Investment)

Affect	Links with Effect - Performing Belief (Investment)
Purpose (Impetus)	Teachers commented that the children **'wanted to believe'** in the game and **invested time and energy in developing the game-play with their peers.** Teachers often engaged in **imaginative, improvised interactions** with the children and artists whilst in the installation and also, to a lesser extent, during classroom episodes.
Urgency (Imperative)	The evil character Circe's imminent arrival, and the urgent need to escape, were signalled by changes in the digital and physical environment. At these moments the children **helped to shape the atmosphere of suspense through their physical responses:** sometimes these were conscious performances (such as screaming or huddling together when the lights flickered in the installation or exclaiming when caught by Circe in the virtual world) but others were involuntary (such as flinching at the sudden sound of thunder or sighing when shelter was reached in the virtual world). This **embodied performance deepened their engagement** and understanding of the characters. Although most children enjoyed the thrill of the fictional peril posed by Circe in the installation, there were instances in which **some children found moments of heightened urgency overwhelming**.
Place (Inhabitation)	In the installation, the children, teachers and artists all **used their bodies to enact belief** in the fiction and when, very occasionally, an adult participant did not use their bodies to enact 'fear' or 'curiosity' during the installation the children and artists found this distracting and that it detracted from the experience. The children reported that they felt like they **were playing a 'real-life game'** and they were keen to explore Fallow Cross in the installation and in the game. They **formed mental maps** of the fictional world and some of the children made **imaginative connections between Fallow Cross and their local environment**.
Community (Implications)	The **children negotiated the believability of the game,** with their peers by making **links with their prior knowledge** of games and narratives, **critiquing representations** of the game-world and **contesting the interpretations** of others.

Re-Shaping Relationships (Identity)

Affect	Links with Effect - Re-Shaping Relationships (Identity)
Purpose (Impetus)	In playing the game, **each child adopted the role of 'team member'. Teachers enjoyed playing alongside the children** in the installation but, during the classroom challenges the **teachers would occasionally have liked to have played a more active role in facilitating and guiding the learning.**
Urgency (Imperative)	Teachers observed that some of the children were **taking more risks** in their learning due to the pace of game-play and noticed **increased confidence** and **reduced 'fear of failure'** amongst some of the children.
Place (Inhabitation)	The sensory and spatial aspects of the game often prompted children to **make links with their personal experiences** and knowledge of the local area.
Community (Implications)	Teachers also observed the occasional **shift in the social dynamics** in the classroom, with the **less confident pupils more willing to offer information** and suggestions to their peers. The more able/confident learners appeared **more willing and likely to seek and accept advice** from their peers.
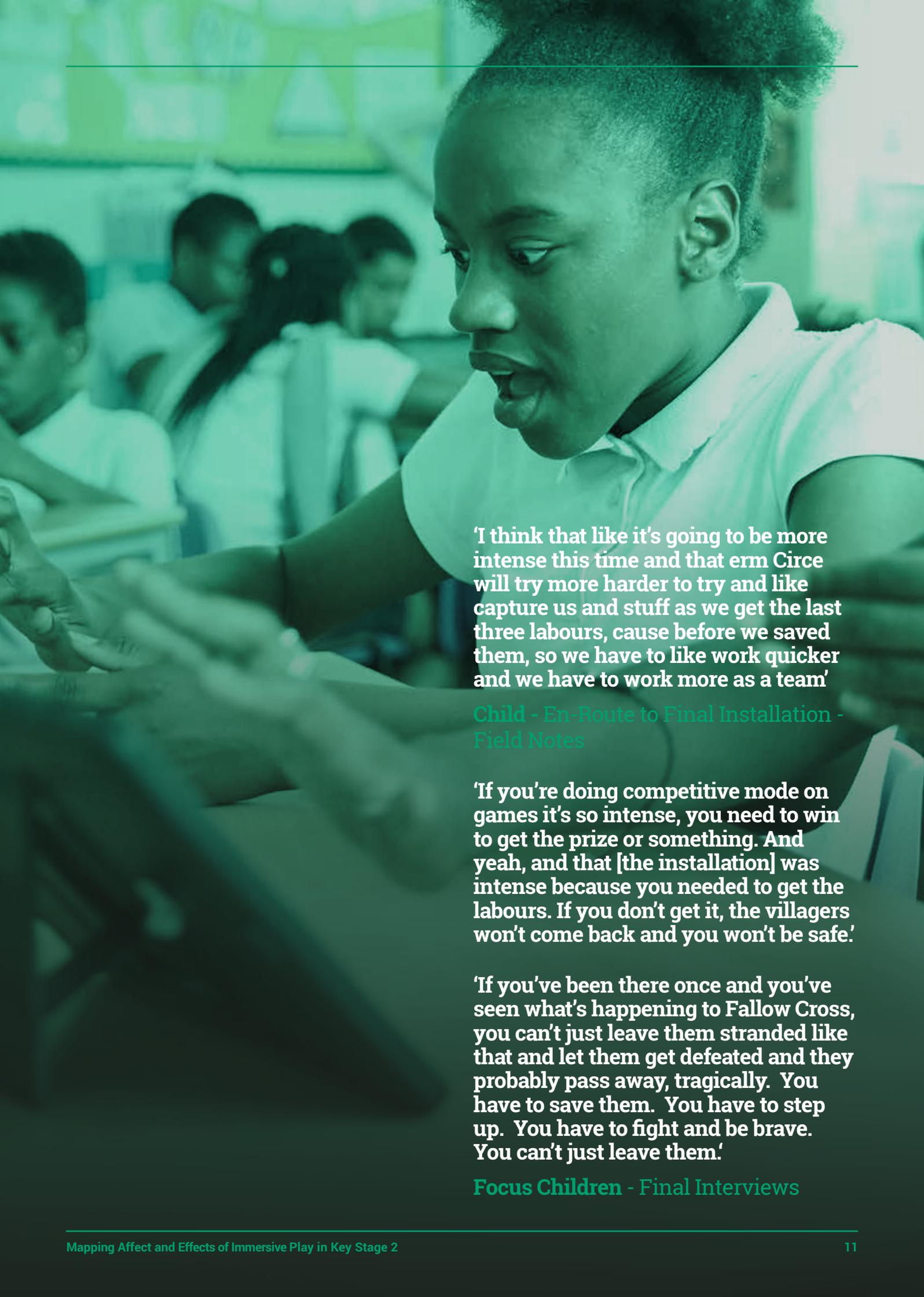
'I think that like it's going to be more intense this time and that erm Circe will try more harder to try and like capture us and stuff as we get the last three labours, cause before we saved them, so we have to like work quicker and we have to work more as a team'

Child - En-Route to Final Installation - Field Notes

'If you're doing competitive mode on games it's so intense, you need to win to get the prize or something. And yeah, and that [the installation] was intense because you needed to get the labours. If you don't get it, the villagers won't come back and you won't be safe.'

'If you've been there once and you've seen what's happening to Fallow Cross, you can't just leave them stranded like that and let them get defeated and they probably pass away, tragically. You have to save them. You have to step up. You have to fight and be brave. You can't just leave them.'

Focus Children - Final Interviews

Summary Recommendations

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This research sought to understand the purposes, practices, processes and products of The Oracles from the perspective of artists, teachers and children. In doing so, it revealed and mapped the relationship between the intensity (affect) and engagement (effect) of the participants' experiences over five weeks of gameplay. The model of immersive play which emerged from this research provides a pedagogical tool which can be used by teachers and artists to understand how the 'affective' aspects of play, relating to emotional, cognitive and physical interpretations and experiences guide and inform the active engagement of players.

The Oracles provided many opportunities for participants to co-construct stories and engage in distributed problem-solving. In doing so, the children performed belief (McGonigal 2003) in the fictional world and merged their personal identities with their fictional responsibilities to 'save Fallow Cross'. This research has highlighted that the engagement of players was inextricably linked with the intensity of their experiences in the virtual and physical spaces. In order to understand the pedagogical significance of immersive play in The Oracles then, learning needs to be viewed as a process of embodied meaning making, an ebb and flow of affect and effect across physical and digital spaces.

In order to extend the pedagogical possibilities for engagement, in The Oracles and future work, it is recommended that Punchdrunk Enrichment consider:

- Developing a shared understanding of the potential and principles of immersive play and gaming with teachers and children;
- Further investigating the use of the local environment (such as school halls, streets, buses and parks) might be used to provide further opportunities for student engagement;
- Exploring ways to develop teachers' confidence and skills in integrating dramatic play into their teaching and learning, demonstrating how to use and transform everyday resources and environments;
- Supporting teachers to observe and document students' engagement, raising awareness of the relationship between 'affect' and 'effect' during play;
- Extending the ways teachers and artists can be responsive to children's narrative suggestions during gameplay;
- Working in partnership with teachers to shape and adapt the classroom challenges for each cohort;
- Structuring gameplay so that children are given more agency and control in deciding how and when to engage with the affective intensity of the installation;
- Maximising use of social media and digital authoring tools, before and after projects to create a creative 'portal' for communication between participants;
- Increasing opportunities for tackling challenges in the digital game collaboratively (e.g. through the virtual co-presence of players or by distributing challenges and puzzles across the virtual world/classroom setting);
- Structuring the classroom challenges to provide a range of entry points and degrees of difficulty in order that children with different abilities can access them in a variety of ways;
- Compiling suggestions and resources for cross-curricular work relating to The Oracles;
- Building in weekly debrief and evaluation sessions between participants, particularly between teachers and PE, so that the process of play can be adapted as the game progresses.

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**Full Report available here:
http://argle.net/downloads/The-Oracles-Final-Report.pdf**